Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Sections 15.35 and 15.253 of the	)	**ET Docket No. 11-90**
Commission's Rules Regarding Operation of	)	**RM-11555**
Radar Systems in the 76-77 GHz Band.	)	
	)	
Amendment of Section 15.253 of the	)	**ET Docket No. 10-28**
Commission's Rules to Permit Fixed	)	
Use of Radar in the 76-77 GHz Band.	)	

To: The Office of the Secretary

OPPOSITION OF Continental Automotive Systems, Inc.
TO PETITION FOR RECONSIDERATION

Pursuant to Section 1.429 of the Commission's rules, Continental AG and Continental Automotive Systems, Inc. hereby submit this Opposition to Navtech Radar´s Petition for Partial Reconsideration of the Order in above captioned proceeding (That being FCC-12-72A1)

Continental AG and its US subsidiary Continental Automotive Systems (denoted "Continental" in this document) manufacture and sell a variety of driver assistance systems for automotive comfort and safety systems. The first comfort ACC (Adaptive Cruise Control) devices entered the market in 1999, used the 76-77 GHz frequency range and were compliant to FCC part 15.253. Since then, this technology has been successfully deployed in several hundred thousand vehicles in the US and elsewhere, including an evolution to full-speed range systems, ACC systems, and emergency braking applications. The 76-77 GHz technology is a key technology

- for advanced emergency braking systems (AEBS) becoming mandatory for heavy trucks in Europe from 2013.
- and for the AEB City and AEB Urban section of the EUNCAP regulations.

Since 2007, Continental and its customers have made extensive use of the 24 GHz bands for short-range-radar (SRR) applications such as blind-spot detection and lane change assist. These devices comply with FCC part 15.252 or part 15.249, respectively.

Interference free operation for safety applications is a key concern of the automotive industry. The FCC has recognized this by restricting the 76-77 GHz band in part 15.253 to "to vehicle-mounted field disturbance sensors used as vehicle radar systems," and not allowing fixed radar installations in this band. The ITU has recognized the need for interference free operation in ITU-R recommendation M1452 [1] by recommending separate frequency bands for forward looking applications (Category 1, 76-77 GHz, annex 1 of ITU-R M1452) and for "Short-range" radar (SRR) applications, including rear-facing applications such as such as Blind Spot Detection (BSD), Lane-Change Assist (LCA), and Rear-Traffic-Crossing-Alert (RTCA) (Category 2, 77-81 GHz, annex 2 of ITU-R M1452).

Following this recommendation, Continental is an active member of "The 79 GHz Project" [1] (www.79ghz.eu), a European research project under the Seventh Framework Programme, Grant agreement no. 287929, for the worldwide regulation of the 77-81 GHz range for future SRR applications.

The automotive industry has invested extensively in the development of interference mitigation techniques to reduce interference between automotive radar sensors to a minimum and maximize driver safety. This includes – but is not restricted to – (i) different frequency bands for forward rearward looking applications (see above) and (ii) techniques such as adaptive bandwidth reduction for non-permanent interference scenarios.

During the last three years, these techniques for automotive radar sensors have been extensively validated within the European MOSARIM project (MOre Safety for All by Radar Interference Mitigation, www.mosarim.eu) by various car makers and suppliers of radar sensors, such as Continental. During one of the recent test sessions, the interference potential of road side radars, such those supplied by Navtech to vehicular-based safety systems, have been tested [2]. These

kind of fixed service applications enter the 76-77 GHz band using the economy of scales provided by components originally developed for automotive radar sensors. As documented in [2], road side applications such as the Navtech radar lead to interference in vehicular radar sensors which cannot easily be mitigated, especially if:

1. high transmit powers are used (such as the Navtech radar)
2. a large portion of the available bandwidth of 1000 MHz is consumed by the road side radar (such as the Navtech radar), making interference mitigation techniques such as adaptive bandwidth reduction ineffective
3. the equipment is placed in parallel (or close) to public roads
4. or in tunnels.

Continental cannot share Navtech Radar´s conclusion that "… There is evidence that there is no interference between fixed infrastructure scanning radar and automotive radar…"

Continental is willing to discuss sharing frequency bands and generally feels comfortable with 76-77 GHz applications for non-roadside applications. However, Continental expresses serious concerns to the general deployment of this technology for fixed applications, including road-side applications.

References:

[1] Recommendation ITU-R M.1452-2, (05/2012), "Millimetre wave vehicular collision avoidance radars and radiocommunication systems for intelligent transport system applications, M Series"

[2] "Results of interference tests between automotive radar systems and Navtech Traffic Monitoring System" https://assrv1.haw-aw.de/mosarim/index.php/dataexchange/func-startdown/1319

Respectfully submitted,

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